

**WHAT IS CLAIMED IS:**

1. An isolated antibody or portion thereof capable of specifically binding to at least one epitope of a heparanase protein, said heparanase protein being at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:1-5 and 11.

2. The isolated antibody or portion thereof of claim 1, wherein said heparanase protein is at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

3. The isolated antibody or portion thereof of claim 1, wherein said heparanase protein is at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

4. The isolated antibody or portion thereof of claim 1, wherein said heparanase protein is at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

5. The isolated antibody or portion thereof of claim 1, wherein said heparanase protein comprises an amino acid sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

6. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

7. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope is at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

8. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope is at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

9. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises an amino acid sequence as set forth in any of SEQ ID NOs: 6-10.

10. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of SEQ ID NO:6.

11. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:6.

12. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:6.

13. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:8.

14. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:9.

15. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:10.

16. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 75% homologous to the amino acid sequence of SEQ ID NO:7.

17. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:7.

18. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:7.

19. The isolated antibody or portion thereof of claim 1 comprising a polyclonal antibody.

20. The isolated antibody or portion thereof of claim 19, wherein said polyclonal antibody is selected from the group consisting of GH53, RH53 and GapH45.

21. The isolated antibody or portion thereof of claim 19 wherein said polyclonal antibody is selected from the group consisting of a crude polyclonal antibody and an affinity purified polyclonal antibody.

22. The isolated antibody or portion thereof of claim 1 comprising a chimeric antibody.

23. The isolated antibody or portion thereof of claim 1 comprising a humanized antibody.

24. The isolated antibody or portion thereof of claim 1 comprising an Fab fragment.

25. The isolated antibody or portion thereof of claim 1 comprising a single chain antibody.

26. The isolated antibody or portion thereof of claim 1 comprising an immobilized antibody.

27. The isolated antibody or portion thereof of claim 1 comprising a labeled antibody.

28. The isolated antibody or portion thereof of claim 1 comprising a monoclonal antibody.

29. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is a chimeric antibody.

30. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is a humanized antibody.

31. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is an Fab fragment.

32. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is a single chain antibody.

33. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is immobilized.

34. The isolated antibody or portion thereof of claim 28 wherein said monoclonal antibody is labeled.

35. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope is selected from the group consisting of a heparan-sulfate binding site

flanking region, a catalytic proton donor site, a catalytic nucleophilic site, an active site and binding site linking region and a C-terminal sequence of heparanase P8 subunit.

36. The isolated antibody or portion thereof of claim 35, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 70% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

37. The isolated antibody or portion thereof of claim 36, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

38. The isolated antibody or portion thereof of claim 36, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

39. The isolated antibody or portion thereof of claim 36, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence as set forth in SEQ ID NO:6.

40. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a heparan-sulfate binding site flanking region.

41. The isolated antibody or portion thereof of claim 35, wherein said catalytic proton donor site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:8.

42. The isolated antibody or portion thereof of claim 41, wherein said catalytic proton donor site comprises an amino acid sequence as set forth in SEQ ID NO:8.

43. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a catalytic proton donor site.

44. The isolated antibody or portion thereof of claim 35, wherein said catalytic nucleophilic site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:9.

45. The isolated antibody or portion thereof of claim 35, wherein said catalytic nucleophilic site comprises an amino acid sequence as set forth in SEQ ID NO:9.

46. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a catalytic nucleophilic site.

47. The isolated antibody or portion thereof of claim 35, wherein said active site and binding site linking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:10.

48. The isolated antibody or portion thereof of claim 35, wherein said active site and binding site linking region comprises an amino acid sequence as set forth in SEQ ID NO:10.

49. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises an active site and binding site linking region.

50. The isolated antibody or portion thereof of claim 35, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 75% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

51. The isolated antibody or portion thereof of claim 35, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

52. The isolated antibody or portion thereof of claim 35, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

53. The isolated antibody or portion thereof of claim 35, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence as set forth in SEQ ID NO:7.

54. The isolated antibody or portion thereof of claim 1, wherein said at least one epitope comprises a C-terminal sequence of heparanase P8 subunit.

55. The isolated antibody or portion thereof of claim 1, wherein said heparanase protein is substantially free of contaminating proteins, as determined by an assay selected from the group consisting of immunodetection, gel electrophoresis and catalytic activity.

56. The isolated antibody of claim 1, wherein said heparanase protein is a recombinant heparanase protein.

57. A hybridoma cell line for producing a monoclonal antibody, comprising a cell line for producing the monoclonal antibody of claim 28.

58. The hybridoma cell line of claim 57 wherein the antibody or portion thereof is humanized.

59. An isolated antibody or portion thereof elicited by at least one epitope of a heparanase protein, said heparanase protein being at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:1-5 and 11.

60. The isolated antibody or portion thereof of claim 59, wherein said heparanase protein is at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

61. The isolated antibody or portion thereof of claim 59, wherein said heparanase protein is at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

62. The isolated antibody or portion thereof of claim 59, wherein said heparanase protein is at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

63. The isolated antibody or portion thereof of claim 59, wherein said heparanase protein comprises an amino acid sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

64. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

65. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope is at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

66. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope is at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

67. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises an amino acid sequence as set forth in any of SEQ ID NOs: 6-10.

68. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of SEQ ID NO:6.



69. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:6.

70. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:6.

71. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:8.

72. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:9.

73. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:10.

74. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 75% homologous to the amino acid sequence of SEQ ID NO:7.

75. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:7.

76. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:7.

77. The isolated antibody or portion thereof of claim 59 comprising a polyclonal antibody.

78. The isolated antibody or portion thereof of claim 77, wherein said polyclonal antibody is selected from the group consisting of GH53, RH53 and GapH45.

79. The isolated antibody or portion thereof of claim 77 wherein said polyclonal antibody is selected from the group consisting of a crude polyclonal antibody and an affinity purified polyclonal antibody.

80. The isolated antibody or portion thereof of claim 59 comprising a chimeric antibody.

81. The isolated antibody or portion thereof of claim 59 comprising a humanized antibody.

82. The isolated antibody or portion thereof of claim 59 comprising an Fab fragment.

83. The isolated antibody or portion thereof of claim 59 comprising a single chain antibody.

84. The isolated antibody or portion thereof of claim 59 comprising an immobilized antibody.

85. The isolated antibody or portion thereof of claim 59 comprising a labeled antibody.

86. The isolated antibody or portion thereof of claim 59 comprising a monoclonal antibody.

87. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is a chimeric antibody.

88. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is a humanized antibody.

89. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is an Fab fragment.

90. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is a single chain antibody.

91. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is immobilized.

92. The isolated antibody or portion thereof of claim 86 wherein said monoclonal antibody is labeled.

93. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope is selected from the group consisting of a heparan-sulfate binding site flanking region, a catalytic proton donor, a catalytic nucleophilic site, an active site and binding site linking region and a C-terminal sequence of heparanase P8 subunit.

94. The isolated antibody or portion thereof of claim 93, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 70% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

95. The isolated antibody or portion thereof of claim 93, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

96. The isolated antibody or portion thereof of claim 93, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

97. The isolated antibody or portion thereof of claim 93, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence as set forth in SEQ ID NO:6.

98. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a heparan-sulfate binding site flanking region.

99. The isolated antibody or portion thereof of claim 93, wherein said catalytic proton donor site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:8.

100. The isolated antibody or portion thereof of claim 93, wherein said catalytic proton donor site comprises an amino acid sequence as set forth in SEQ ID NO:8.

101. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a catalytic proton donor site.

102. The isolated antibody or portion thereof of claim 93, wherein said catalytic nucleophilic site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:9.

103. The isolated antibody or portion thereof of claim 93, wherein said catalytic nucleophilic site comprises an amino acid sequence as set forth in SEQ ID NO:9.

104. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a catalytic nucleophilic site.

105. The isolated antibody or portion thereof of claim 93, wherein said active site and binding site linking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:10.

106. The isolated antibody or portion thereof of claim 93, wherein said active site and binding site linking region comprises an amino acid sequence as set forth in SEQ ID NO:10.

107. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises an active site and binding site linking region.

108. The isolated antibody or portion thereof of claim 93, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 75% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

109. The isolated antibody or portion thereof of claim 93, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

110. The isolated antibody or portion thereof of claim 93, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

111. The isolated antibody or portion thereof of claim 93, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence as set forth in SEQ ID NO:7.

112. The isolated antibody or portion thereof of claim 59, wherein said at least one epitope comprises a C-terminal sequence of heparanase P8 subunit.

113. The isolated antibody or portion thereof of claim 59, wherein said heparanase protein is substantially free of contaminating proteins, as determined by an

assay selected from the group consisting of immunodetection, gel electrophoresis and catalytic activity.

114. The isolated antibody of claim 59, wherein said heparanase protein is a recombinant heparanase protein.

115. A hybridoma cell line for producing a monoclonal antibody, comprising a cell line for producing the monoclonal antibody of claim 86.

116. The hybridoma cell line of claim 115 wherein the antibody or portion thereof is humanized.

117. An isolated antibody or portion thereof capable of specifically binding to at least one epitope of a heparanase protein, said at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

118. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope is at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

119. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope is at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

120. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises an amino acid sequence as set forth in any of SEQ ID NOs: 6-10.

121. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of SEQ ID NO:6.

122. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:6.

123. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:6.

124. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:8.

125. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:9.

126. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:10.

127. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 75% homologous to the amino acid sequence of SEQ ID NO:7.

128. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:7.

129. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:7.

130. The isolated antibody or portion thereof of claim 117, wherein said heparanase protein is at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

131. The isolated antibody or portion thereof of claim 117, wherein said heparanase protein is at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

132. The isolated antibody or portion thereof of claim 117, wherein said heparanase protein is at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

133. The isolated antibody or portion thereof of claim 117, wherein said heparanase protein comprises an amino acid sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

134. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

135. The isolated antibody or portion thereof of claim 117 comprising a polyclonal antibody.

136. The isolated antibody or portion thereof of claim 135, wherein said polyclonal antibody is selected from the group consisting of GH53, RH53 and GapH45.

137. The isolated antibody or portion thereof of claim 135 wherein said polyclonal antibody is selected from the group consisting of a crude polyclonal antibody and an affinity purified polyclonal antibody.

138. The isolated antibody or portion thereof of claim 117 comprising a chimeric antibody.



139. The isolated antibody or portion thereof of claim 117 comprising a humanized antibody.

140. The isolated antibody or portion thereof of claim 117 comprising an Fab fragment.

141. The isolated antibody or portion thereof of claim 117 comprising a single chain antibody.

142. The isolated antibody or portion thereof of claim 117 comprising an immobilized antibody.

143. The isolated antibody or portion thereof of claim 117 comprising a labeled antibody.

144. The isolated antibody or portion thereof of claim 117 comprising a monoclonal antibody.

145. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is a chimeric antibody.

146. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is a humanized antibody.

147. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is an Fab fragment.

148. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is a single chain antibody.

149. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is immobilized.

150. The isolated antibody or portion thereof of claim 144 wherein said monoclonal antibody is labeled.

151. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope is selected from the group consisting of a heparan-sulfate binding site flanking region, a catalytic proton donor, a catalytic nucleophilic site, an active site and binding site linking region and a C-terminal sequence of heparanase P8 subunit.

152. The isolated antibody or portion thereof of claim 151, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 70% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

153. The isolated antibody or portion thereof of claim 151, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

154. The isolated antibody or portion thereof of claim 151, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

155. The isolated antibody or portion thereof of claim 151, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence as set forth in SEQ ID NO:6.

156. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a heparan-sulfate binding site flanking region.

157. The isolated antibody or portion thereof of claim 151, wherein said catalytic proton donor site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:8.

158. The isolated antibody or portion thereof of claim 151, wherein said catalytic proton donor site comprises an amino acid sequence as set forth in SEQ ID NO:8.

159. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a catalytic proton donor site.

160. The isolated antibody or portion thereof of claim 151, wherein said catalytic nucleophilic site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:9.

161. The isolated antibody or portion thereof of claim 151, wherein said catalytic nucleophilic site comprises an amino acid sequence as set forth in SEQ ID NO:9.

162. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a catalytic nucleophilic site.

163. The isolated antibody or portion thereof of claim 151, wherein said active site and binding site linking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:10.

164. The isolated antibody or portion thereof of claim 151, wherein said active site and binding site linking region comprises an amino acid sequence as set forth in SEQ ID NO:10.

165. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises an active site and binding site linking region.

166. The isolated antibody or portion thereof of claim 151, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 75% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

167. The isolated antibody or portion thereof of claim 151, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

168. The isolated antibody or portion thereof of claim 151, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

169. The isolated antibody or portion thereof of claim 151, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence as set forth in SEQ ID NO:7.

170. The isolated antibody or portion thereof of claim 117, wherein said at least one epitope comprises a C-terminal sequence of heparanase P8 subunit.

171. The isolated antibody or portion thereof of claim 117, wherein said heparanase protein is substantially free of contaminating proteins, as determined by an assay selected from the group consisting of immunodetection, gel electrophoresis and catalytic activity.

172. The isolated antibody of claim 117, wherein said heparanase protein is a recombinant heparanase protein.

173. A hybridoma cell line for producing a monoclonal antibody, comprising a cell line for producing the monoclonal antibody of claim 144.

174. The hybridoma cell line of claim 173 wherein the antibody or portion thereof is humanized.

175. An isolated antibody or portion thereof elicited by at least one epitope of a heparanase protein, said at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

176. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope is at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

177. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope is at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

178. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises an amino acid sequence as set forth in any of SEQ ID NOs: 6-10.

179. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 70% homologous to the amino acid sequence of SEQ ID NO:6.

180. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:6.

181. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:6.

182. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:8.

183. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:9.

184. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:10.

185. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 75% homologous to the amino acid sequence of SEQ ID NO:7.

186. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 80% homologous to the amino acid sequence of SEQ ID NO:7.

187. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a sequence being at least 90% homologous to the amino acid sequence of SEQ ID NO:7.

188. The isolated antibody or portion thereof of claim 175, wherein said heparanase protein is at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

189. The isolated antibody or portion thereof of claim 175, wherein said heparanase protein is at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

190. The isolated antibody or portion thereof of claim 175, wherein said heparanase protein is at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

191. The isolated antibody or portion thereof of claim 175, wherein said heparanase protein comprises an amino acid sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

192. The isolated antibody or portion thereof of claim 175 comprising a polyclonal antibody.

193. The isolated antibody or portion thereof of claim 192, wherein said polyclonal antibody is selected from the group consisting of GH53, RH53 and GapH45.

194. The isolated antibody or portion thereof of claim 192 wherein said polyclonal antibody is selected from the group consisting of a crude polyclonal antibody and an affinity purified polyclonal antibody.

195. The isolated antibody or portion thereof of claim 175 comprising a chimeric antibody.

196. The isolated antibody or portion thereof of claim 175 comprising a humanized antibody.

197. The isolated antibody or portion thereof of claim 175 comprising an Fab fragment.

198. The isolated antibody or portion thereof of claim 175 comprising a single chain antibody.

199. The isolated antibody or portion thereof of claim 175 comprising an immobilized antibody.

200. The isolated antibody or portion thereof of claim 175 comprising a labeled antibody.

201. The isolated antibody or portion thereof of claim 175 comprising a monoclonal antibody.

202. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is a chimeric antibody.

203. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is a humanized antibody.

204. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is an Fab fragment.

205. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is a single chain antibody.

206. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is immobilized.

207. The isolated antibody or portion thereof of claim 201 wherein said monoclonal antibody is labeled.

208. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope is selected from the group consisting of a heparan-sulfate binding site flanking region, a catalytic proton donor, a catalytic nucleophilic site, an active site and binding site linking region and a C-terminal sequence of heparanase P8 subunit.

209. The isolated antibody or portion thereof of claim 208, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 70% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

210. The isolated antibody or portion thereof of claim 208, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:6.

211. The isolated antibody or portion thereof of claim 208, wherein said heparan-sulfate binding site flanking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:6.



212. The isolated antibody or portion thereof of claim 208, wherein said heparan-sulfate binding site comprises an amino acid sequence as set forth in SEQ ID NO:6.

213. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a heparan-sulfate binding site.

214. The isolated antibody or portion thereof of claim 208, wherein said catalytic proton donor site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:8.

215. The isolated antibody or portion thereof of claim 208, wherein said catalytic proton donor site comprises an amino acid sequence as set forth in SEQ ID NO:8.

216. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a catalytic proton donor site.

217. The isolated antibody or portion thereof of claim 208, wherein said catalytic nucleophilic site comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:9.

218. The isolated antibody or portion thereof of claim 208, wherein said catalytic nucleophilic site comprises an amino acid sequence as set forth in SEQ ID NO:9.

219. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a catalytic nucleophilic site.

220. The isolated antibody or portion thereof of claim 208, wherein said active site and binding site linking region comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:10.

221. The isolated antibody or portion thereof of claim 208, wherein said active site and binding site linking region comprises an amino acid sequence as set forth in SEQ ID NO:10.

222. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises an active site and binding site linking region.

223. The isolated antibody or portion thereof of claim 208, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 75% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

224. The isolated antibody or portion thereof of claim 208, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 80% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

225. The isolated antibody or portion thereof of claim 208, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence at least 90% homologous to the amino acid sequence as set forth in SEQ ID NO:7.

226. The isolated antibody or portion thereof of claim 208, wherein said C-terminal sequence of heparanase P8 subunit comprises an amino acid sequence as set forth in SEQ ID NO:7.

227. The isolated antibody or portion thereof of claim 175, wherein said at least one epitope comprises a C-terminal sequence of heparanase P8 subunit.

228. The isolated antibody or portion thereof of claim 175, wherein said heparanase protein is substantially free of contaminating proteins, as determined by an

assay selected from the group consisting of immunodetection, gel electrophoresis and catalytic activity.

229. The isolated antibody of claim 175, wherein said heparanase protein is a recombinant heparanase protein.

230. A hybridoma cell line for producing a monoclonal antibody, comprising a cell line for producing the monoclonal antibody of claim 201.

231. The hybridoma cell line of claim 230 wherein the antibody or portion thereof is humanized.

232. A method for treating a subject suffering from a pathological condition, the method comprising administering a therapeutically effective amount of the anti-heparanase antibody or portion thereof of claim 1.

233. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

234. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

235. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

236. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

237. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

238. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

239. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

240. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

241. The method of claim 232, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

242. The method of claim 232, wherein said pathological condition is selected from the group consisting of an inflammatory disorder, a wound, a scar, a vasculopathy and an autoimmune condition.

243. The method of claim 232, wherein said vasculopathy is selected from the group consisting of atherosclerosis, restenosis and aneurysm.

244. The method of claim 232, wherein said pathological condition is selected from the group consisting of angiogenesis, cell proliferation, a cancerous condition, tumor cell proliferation, invasion of circulating tumor cells and a metastatic disease.

245. The method of claim 244, wherein said cancerous condition is selected from the group consisting of a blood, breast, bladder, rectum, stomach, cervix, ovarian, colon, renal and prostate cancer.

246. The method of claim 232, wherein said anti-heparanase antibody is a monoclonal antibody.

247. The method of claim 246, wherein said monoclonal antibody is a humanized antibody.

248. The method of claim 246, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

249. The method of claim 247, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:1-10.

250. The method of claim 232, wherein said anti-heparanase antibody is a heparanase neutralizing antibody.

251. A method for treating or preventing a heparanase-related disorder or condition in a subject, the method comprising administering a therapeutically effective amount of the anti-heparanase antibody or portion thereof of claim 1.

252. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

253. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

254. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

255. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

256. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

257. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

258. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

259. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

260. The method of claim 251, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

261. The method of claim 251, wherein said heparanase-related disorder or condition is selected from the group consisting of an inflammatory disorder, a wound, a scar, a vasculopathy and an autoimmune condition.

262. The method of claim 261, wherein said vasculopathy is selected from the group consisting of atherosclerosis, restenosis and aneurysm.

263. The method of claim 251, wherein said heparanase-related disorder or condition is selected from the group consisting of angiogenesis, cell proliferation, a cancerous condition, tumor cell proliferation, invasion of circulating tumor cells and a metastatic disease.

264. The method of claim 263, wherein said cancerous condition is selected from the group consisting of a blood, breast, bladder, rectum, stomach, cervix, ovarian, colon, renal and prostate cancer.

265. The method of claim 251, wherein said anti-heparanase antibody is a monoclonal antibody.

266. The method of claim 251, wherein said anti-heparanase antibody is a humanized antibody.

267. The method of claim 265, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

268. The method of claim 265, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

269. The method of claim 265, wherein said anti-heparanase antibody is a heparanase neutralizing antibody.

270. A method of detecting the presence of a heparanase polypeptide in a sample, the method comprising incubating said sample with a heparanase-specific antibody according to claim 1 in a manner suitable for formation of a heparanase polypeptide-antibody immune complex; wherein said heparanase-specific antibody is characterized by specifically binding to heparanase, and detecting the presence of said heparanase polypeptide-antibody immune complex to determine whether a heparanase polypeptide is present in the sample.

271. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

272. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

273. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

274. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

275. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

276. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.



277. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

278. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

279. The method of claim 270, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

280. The method of claim 270, wherein said anti-heparanase antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

281. The method of claim 270, wherein said anti-heparanase antibody is a monoclonal antibody.

282. The method of claim 281, wherein said anti-heparanase antibody is a humanized antibody.

283. The method of claim 281, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

284. The method of claim 270, wherein said anti-heparanase antibody is labeled with a labeling agent that provides a detectable signal.

285. The method of claim 284, wherein said labeling agent is selected from the group consisting of an enzyme, a fluorophore, a chromophore, a protein, a chemiluminescent substance and a radioisotope.

286. The method of claim 270, wherein said anti-heparanase antibody is a heparanase neutralizing antibody.

287. A method for detecting a heparanase-related disease or condition in a subject, the method comprising:

- (a) obtaining a biological sample from the subject;
  - (b) contacting said biological sample with a anti-heparanase antibody according to claim 1 in a manner suitable for formation of a heparanase polypeptide-antibody immune complex; and
  - (c) detecting the presence of said heparanase polypeptide- antibody immune complex to determine whether a heparanase polypeptide is present in the sample, wherein the presence or absence of said heparanase polypeptide- antibody immune complex indicates a heparanase-related disease or condition;
- thereby detecting a heparanase-related disease or condition in a subject.

288. The method of claim 287, wherein said subject is a vertebrate.

289. The method of claim 288, wherein said subject is a mammalian subject.

290. The method of claim 289, wherein said mammalian subject is a human subject.

291. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

292. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

293. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

294. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

295. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

296. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

297. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

298. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

299. The method of claim 287, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

300. The method of claim 287, wherein said heparanase-related disorder or condition is selected from the group consisting of an inflammatory disorder, a wound, a scar, a vasculopathy and an autoimmune condition.

301. The method of claim 291, wherein said vasculopathy is selected from the group consisting of atherosclerosis, restenosis and aneurysm.

302. The method of claim 287, wherein said heparanase-related disorder or condition is selected from the group consisting of angiogenesis, cell proliferation, a cancerous condition, tumor cell proliferation, invasion of circulating tumor cells and a metastatic disease.

303. The method of claim 302, wherein said cancerous condition is selected from the group consisting of a blood, breast, bladder, rectum, stomach, cervix, ovarian, colon, renal and prostate cancer.

304. The method of claim 287, wherein said heparanase-related disorder or condition is a renal disease or disorder.

305. The method of claim 304, wherein said renal disease or disorder is selected from the group consisting of diabetic nephropathy, glomerulosclerosis, nephrotic syndrome, minimal change nephrotic syndrome and renal cell carcinoma.

306. The method of claim 287, wherein said biological sample is selected from the group consisting of serum, plasma, urine, synovial fluid, spinal fluid, tissue sample, a tissue and/or a fluid.

307. The method of claim 287, wherein said contacting said sample is performed in situ.

308. The method of claim 287, wherein said contacting said sample is performed in vitro.

309. The method of claim 287, wherein said anti-heparanase antibody is a monoclonal antibody.

310. The method of claim 287, wherein said anti-heparanase antibody is a humanized antibody.

311. The method of claim 309, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

312. The method of claim 309, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

313. The method of claim 287, wherein said anti-heparanase antibody is a heparanase neutralizing antibody.

314. A method for monitoring the state of a heparanase-related disorder or condition in a subject, the method comprising:

- (a) obtaining a biological sample from the subject;
  - (b) contacting said biological sample with an anti-heparanase antibody according to claim 1 in a manner suitable for formation of a heparanase polypeptide-antibody complex;
  - (c) detecting a presence, absence or level of said heparanase polypeptide-antibody complex to determine a presence, absence or level of a heparanase polypeptide in said biological sample;
  - (d) repeating steps (a) through (c) at predetermined time intervals; and
  - (e) determining a degree of change of said presence, absence or level of said heparanase polypeptide at said predetermined time intervals, said change indicating a state of the heparanase-related disorder or condition in said subject;
- thereby monitoring the state of the heparanase-related disorder or condition in said subject.

315. The method of claim 314, wherein said subject is a vertebrate.

316. The method of claim 315, wherein said subject is a mammalian subject.

317. The method of claim 316, wherein said mammalian subject is a human subject.

318. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

319. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

320. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

321. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

322. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

323. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

324. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

325. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

326. The method of claim 314, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

327. The method of claim 314, wherein said heparanase-related disorder or condition is selected from the group consisting of an inflammatory disorder, a wound, a scar, a vasculopathy and an autoimmune condition.

328. The method of claim 327, wherein said vasculopathy is selected from the group consisting of atherosclerosis, restenosis and aneurysm.

329. The method of claim 314, wherein said heparanase-related disorder or condition is selected from the group consisting of angiogenesis, cell proliferation, a cancerous condition, tumor cell proliferation, invasion of circulating tumor cells and a metastatic disease.

330. The method of claim 329, wherein said cancerous condition is selected from the group consisting of a blood, breast, bladder, rectum, stomach, cervix, ovarian, colon, and prostate cancer.

331. The method of claim 314, wherein said heparanase-related disorder or condition is a renal disease or disorder.

332. The method of claim 331, wherein said renal disease or disorder is selected from the group consisting of diabetic nephropathy, glomerulosclerosis, nephrotic syndrome, minimal change nephrotic syndrome and renal cell carcinoma.

333. The method of claim 314, wherein said biological sample is selected from the group consisting of serum, plasma, urine, synovial fluid, spinal fluid, tissue sample, a tissue and/or a fluid.

334. The method of claim 314, wherein said contacting said sample is performed in situ.

335. The method of claim 314, wherein said contacting said sample is performed in vitro.

336. The method of claim 314, wherein said anti-heparanase antibody is a monoclonal antibody.

337. The method of claim 314, wherein said anti-heparanase antibody is a humanized antibody.

338. The method of claim 336, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

339. The method of claim 117, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

340. The method of claim 314, wherein said anti-heparanase antibody is a heparanase neutralizing antibody.

341. A pharmaceutical composition comprising the isolated anti-heparanase antibody or portion thereof of claim 1 and a pharmaceutically acceptable carrier.

342. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope



comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

343. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

344. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

345. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

346. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

347. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

348. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

349. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

350. The pharmaceutical composition of claim 341, wherein said anti-heparanase antibody or portion thereof is capable of binding to at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

351. The pharmaceutical composition of claim 341, wherein said isolated anti-heparanase antibody or portion thereof is a monoclonal antibody.

352. The method of claim 341, wherein said anti-heparanase antibody is a humanized antibody.

353. The pharmaceutical composition of claim 351, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

354. The pharmaceutical composition of claim 351, wherein said monoclonal antibody is elicited by a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

355. A pharmaceutical composition comprising the isolated anti-heparanase antibody or portion thereof of claim 59 and a pharmaceutically acceptable carrier.

356. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

357. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID Nos:1-5 and 11.

358. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 90% homologous to the amino acid sequence of any of SEQ ID Nos: 1-5 and 11.

359. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence as set forth in any of SEQ ID NOs: 1-5 and 11.

360. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 60% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

361. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 70% homologous to the amino acid sequence of any of SEQ ID NOs:6-10.

362. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence at least 80% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

363. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a

sequence at least 90% homologous to the amino acid sequence of any of SEQ ID NOs: 6-10.

364. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody or portion thereof is elicited by at least one epitope comprising a sequence as set forth in any of SEQ ID NOs:6-10.

365. The pharmaceutical composition of claim 355, wherein said anti-heparanase antibody is a monoclonal antibody.

366. The method of claim 355, wherein said anti-heparanase antibody is a humanized antibody.

367. The pharmaceutical composition of claim 366, wherein said monoclonal antibody is selected from the group consisting of HP130, HP 239, HP 108.264, HP 115.140, HP 152.197, HP 110.662, HP 144.141, HP 108.371, HP 135.108, HP 151.316, HP 117.372, HP 37/33, HP3/17, HP 201 and HP 102.

368. The pharmaceutical composition of claim 365, wherein said monoclonal antibody is capable of binding to a polypeptide selected from the group consisting of SEQ ID NOs:6-10.

369. An affinity medium for binding human heparanase polypeptides, the medium comprising an anti-heparanase antibody according to claim 1 immobilized to a chemically inert, insoluble carrier.

370. The affinity medium of claim 369, wherein said chemically inert, insoluble carrier is selected from a group consisting of acrylic and styrene based polymers, gel polymers, glass beads, silica, filters and membranes.